

REMARKS

This response is intended as a full and complete response to the Final Office Action dated September 7, 2006. In view of the following amendments and discussion, the Applicants believe that all claims are in allowable form.

AMENDMENT TO THE CLAIMS

Claims 1, 2, 7 and 16 have been amended to correct minor claim language inconsistency.

CLAIM REJECTIONS

35 U.S.C. §102

Claims 1 and 16

Claims 1 and 16 stand rejected under 35 U.S.C. § 102(e) as being anticipated by United States Patent No. 6,565,662 issued May 20, 2003, to *Amano, et al.* (hereinafter referred to as *Amano*). The Applicants respectfully disagree.

Independent claims 1 and 16 recite elements not taught or suggested by *Amano*. *Amano* does not use a hinge to open a processing chamber. Rather, *Amano* teaches using standing frames 64 having a side attached to an upper case 62 and a bottom side positioned in guide rails 67 to facilitate the movement of the upper casing 62 relative to a main body 61. To expose the interior of the main body 61, the upper casing 62 is slid linearly outward on the guide rails 67. (Figure 6C). The upper casing 62 may then rotated relative to the standing frames 64, allowing the upper casing 62 to be changed in orientation from a horizontal position to a vertical position. (Figure 6D). As such, the axis of rotation of the upper casing is moved relative to the main body 61. Thus, *Amano's* structure of rails and frames is not a hinge, as recited by claims 1 and 16.

Therefore, *Amano* does not teach or suggest a hinge coupled to a vacuum chamber body and having a fixed axis of rotation relative to the chamber body, and a lid assembly coupled to the chamber body by the hinge, the lid assembly rotatable about the fixed axis of the hinge between a first position sealing the open upper end and a second position clear of the upper end, as recited by claims 1; or a hinge coupled to a chamber body and having an axis of rotation disposed at a fixed location outward of the chamber body, a lid assembly disposed at a radial distance to the axis of the hinge, the

lid assembly rotatable about the axis of the hinge between a first position sealing the open upper end and a second position clear of the upper end, as recited by claim 16.

The Examiner asserts that Amano's apparatus teaches a fixed axis of rotation relative to the chamber body and located outward of the chamber body. The Applicants disagree, as although the upper casing is rotated when in a position outward of the chamber body, the axis of rotation moves with the upper casing along the rails, and therefore is not fixed relative to the chamber body. Additionally, the casing is move linearly clear of chamber body before rotating, and as such, is not rotated clear of the chamber body. Therefore, as *Amano* does not teach or suggest a hinge, and that the axis of rotation is not fixed relative to the chamber body, the Applicants submit that *Amano*' does not teach or suggest a lid assembly rotatable about a hinge having a fixed axis of rotation relative to the chamber body between a first position sealing the open upper end and a second position clear of the upper end.

Thus, the Applicants submit that independent claims 1 and 16 are patentable over *Amano*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

35 U.S.C. §103 Claims 6 and 17

Claims 6 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable by *Amano* in view of United States Patent No. 6,469,448 issued October 22, 2002, to *Taguchi, et al.* (hereinafter referred to as *Taguchi*) in view of United States Patent No. 6,042,707 issued March 28, 2000, to *Moslehi, et al.* (hereinafter referred to as *Moslehi*). The Applicants respectfully disagree.

Independent claims 1 and 16 recite elements not taught or suggested by the combination of *Amano*, *Taguchi* and *Moslehia*. The teaching of *Amano* has been discussed above. *Taguchi* teaches a PVD deposition chamber. *Moslehia* teaches using magnetrons in a PVD chamber to facilitate a sputter process. However, modifying the processing chamber taught by *Amano* with to a target as taught by *Taguchi* and/or a magnetrons as taught by *Moslehia* fails to teach or suggest a hinge coupled to a vacuum chamber body and having a fixed axis of rotation relative to the chamber body, and a lid assembly coupled to the chamber body by the hinge, the lid assembly

rotatable about the fixed axis of the hinge between a first position sealing the open upper end and a second position clear of the upper end, as recited by claims 1; or a hinge coupled to a chamber body and having an axis of rotation disposed at a fixed location outward of the chamber body, a lid assembly disposed at a radial distance to the axis of the hinge, the lid assembly rotatable about the axis of the hinge between a first position sealing the open upper end and a second position clear of the upper end, as recited by claim 16.

Thus, the Applicants submit that independent claims 1 and 16, and claims 6 and 17 and depending therefrom, are patentable over the combination of *Amano*, *Taguchi* and *Moslehia*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

35 U.S.C. §103 Claims 1-3 and 5

Claims 1-3 and 5 stand rejected under 35 U.S.C. § 103 as being unpatentable over United States Patent No. 5,731,678 issued March 24, 1998, to *Zila*, *et al.* (hereinafter referred to as *Zila*) in view of *Taguchi*. The Applicants respectfully disagree.

Independent claim 1 recites elements not taught or suggested by *Zila* and *Taguchi*. *Zila* teaches an improved workpiece retainer 406 that provides precise and repeatable workpiece position of a workpiece W in a non-vacuum electroplating system. Operator arms 407 are used to rotate the workpiece W retained in the workpiece retainer 406 about a pivot axis 411 from a face-up position to a face-down position. (Col. 6, Lines 10-30). The pivot axis 411 is fixed in the workpiece retainer 406 to facilitate the rotation of the workpiece W and promote the transfer accuracy and speed of the workpiece W. The workpiece retainer 406 is rotated at the pivot axis 411 on a same vertical and horizontal plane right above the chamber body. In other word, the workpiece retainer 406 is rotated relative to itself at the pivot axis 4-11 fixed in the workpiece retainer 406 in a non-vacuum electroplating apparatus. *Zila* does not teach or suggest a hinge coupled to a vacuum chamber body and having a fixed axis of rotation relative to the chamber body, and a lid assembly coupled to the chamber body by the hinge, the lid assembly rotatable about the fixed axis of the hinge between a first

position sealing the open upper end and a second position clear of the upper end, as recited by claim 1.

Taguchi merely teaches an inductively coupled RF plasma vacuum PVD deposition chamber utilized to improve non-uniformity in a substrate treatment process. The Examiner asserts that it would be obvious to provide a target mounted to a chamber lid to carry out a sputtering process as taught by *Taguchi*. Although the Examiner did not explicitly state that it would be obvious to modify *Zila* with the target of *Taguchi*, or the chamber of *Taguchi* as suggested by the workpiece holder of *Zila*, the Applicants submit that there is no motivation to make any of these modifications to render claim 1 obvious because there is no suggestion from within the references to make the asserted modifications.

Specifically, *Zila* is silent regarding how the top plate of the chamber is opened. As such, there is no motivation from within *Zila* to suggest any particular type of opening mechanism. *Taguchi* teaches a workpiece holder that is rotatable between a workpiece down position covering a bath and a workpiece up position that facilitates handoff of the workpiece to a workpiece handling mechanism. The reasons why the workpiece holder of *Taguchi* rotates are not applicable to *Zila*, as *Zila* does not operate with a face down workpiece and because opening the chamber of *Zila* to retrieve a substrate would require breaking vacuum, resulting in extensive chamber down time for pumping and decontamination. Thus, there is no motivation from within *Zila* to suggest modification with the type of opening mechanism taught by *Taguchi*.

Moreover, the references must be in the field of the applicants endeavor, or reasonably pertinent to the particular problem with which the inventor was concerned. See, M.P.E.P. §2141.01(a). "In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination or other modification." *In re Linter*, 458 F.2d 1013, 1016, 173 U.S.P.Q. 560, 562 (CCPA 1972); M.P.E.P. §2143.01. Here, *Zila*'s workpiece retainer utilized to hold a workpiece in a plating apparatus is not pertinent to any problem associated with a PVD system as taught by *Zila*. Since both *Zila* and *Taguchi* address issues in different fields of

endeavors (wet plating in an atmospheric pressure as compared to physical vapor deposition in a vacuum environment), and not reasonably pertinent to the same particular problem as claimed by the present invention, the teachings in the references are clearly insufficient to suggest to one of ordinary skill in the relevant art to make the proposed substitution, combination or other modification to result in a hinge coupled to a vacuum chamber body and having a fixed axis of rotation relative to the chamber body, and a lid assembly coupled to the chamber body by the hinge, the lid assembly rotatable about the fixed axis of the hinge between a first position sealing the open upper end and a second position clear of the upper end, as recited by claim 1.

Thus, the Applicants submit that independent claim 1, and claims 2-3 and depending therefrom, are patentable over *Zila* and *Taguchi*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

35 U.S.C. §103 Claim 6

Claim 6 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Zila* in view of *Taguchi* and further in view of *Moslehia*. The Applicants respectfully disagree.

Independent claim 1 recites elements not taught or suggested by the combination of *Zila*, *Taguchi* and *Moslehia*. The teachings of *Zila*, *Taguchi* and *Moslehia* have been discussed above. Modifying the processing chamber taught by *Zila* with to a target as taught by *Taguchi* and/or magnetrons as taught by *Moslehia* fails to teach or suggest a hinge coupled to a vacuum chamber body and having a fixed axis of rotation relative to the chamber body, as recited by claims 1. As such, a *prima facie* case of obviousness has not been established as the references fail to teach or suggest all the claim elements.

Thus, the Applicants submit that independent claim 1, and claim 6 depending therefrom, are patentable over the combination of *Zila*, *Taguchi* and *Moslehia*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

35 U.S.C. §103 Claim 11

Claim 11 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Zila* in view *Taguchi*. The Applicants respectfully disagree.

Independent claim 11 recites elements not taught or suggested by the combination of *Zila* and *Taguchi*. The teachings of *Zila* and *Taguchi* have been discussed above. Modifying the processing chamber taught by *Zila* with to a target as taught by *Taguchi* fails to teach or suggest a first mounting bracket coupled to a lid assembly, one or more bearing mounts coupled to a chamber body, a shaft having a fixed position relative to the chamber body and lid assembly, the shaft coupled to the first mounting bracket and rotatably disposed through the bearing mounts, as recited by claims 11. As such, a *prima facie* case of obviousness has not been established as the references fail to teach or suggest all the claim elements.

Thus, the Applicants submit that independent claim 11 is patentable over the combination of *Zila* and *Taguchi*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

35 U.S.C. §103 Claims 12, 13 and 15

Claims 12, 13 and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Zila* in view *Taguchi* as applied to claim 11 and further in view of United States Patent No. 6,198,299 issued March 6, 2001, to *Hollman* (hereinafter referred to as *Hollman*) and United States Patent No. 4,416,102 issued November 22, 1983, to *Peters* (hereinafter referred to as *Peters*). The Applicants respectfully disagree.

Independent claim 11 recites elements not taught or suggested by the combination of *Zila*, *Taguchi*, *Hollman* and *Peters*. The teachings of *Zila* and *Taguchi* have been discussed above. *Hollman* teaches using pins and bushings to align a chamber lid. *Peters* teaches a C-shape bushing. Modifying the processing chamber taught by *Zila* with to a target as taught by *Taguchi*, pins and bushings as taught by *Hollman* and C-shape bushing as taught by *Peters* fails to teach or suggest a first mounting bracket coupled to a lid assembly, one or more bearing mounts coupled to a chamber body, a shaft having a fixed position relative to the chamber body and lid assembly, the shaft coupled to the first mounting bracket and rotatably disposed through the bearing mounts, as recited by claims 11. As such, a *prima facie* case of

obviousness has not been established as the references fail to teach or suggest all the claim elements.

Thus, the Applicants submit that independent claim 11, and claims 12, 13 and 15 depending therefrom, are patentable over the combination of *Zila*, *Taguchi*, *Hollman* and *Peters*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

ALLOWED CLAIMS

The Applicants thank the Examiner for indication of the allowability of claim 14 if rewritten in independent form. However, in view of the discussion and amendments set forth above, the Applicants believe all claims are in allowable form as they now stand.


CONCLUSION

Thus, for at least the reasons discussed above the Applicants submit that all claims now pending are in condition for allowance. Accordingly, both reconsideration of this application and swift passage to issue are earnestly solicited.

If the Examiner believes that any unresolved issues still exist, it is requested that the Examiner telephone Keith Taboada at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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Date



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